

Fig. 1

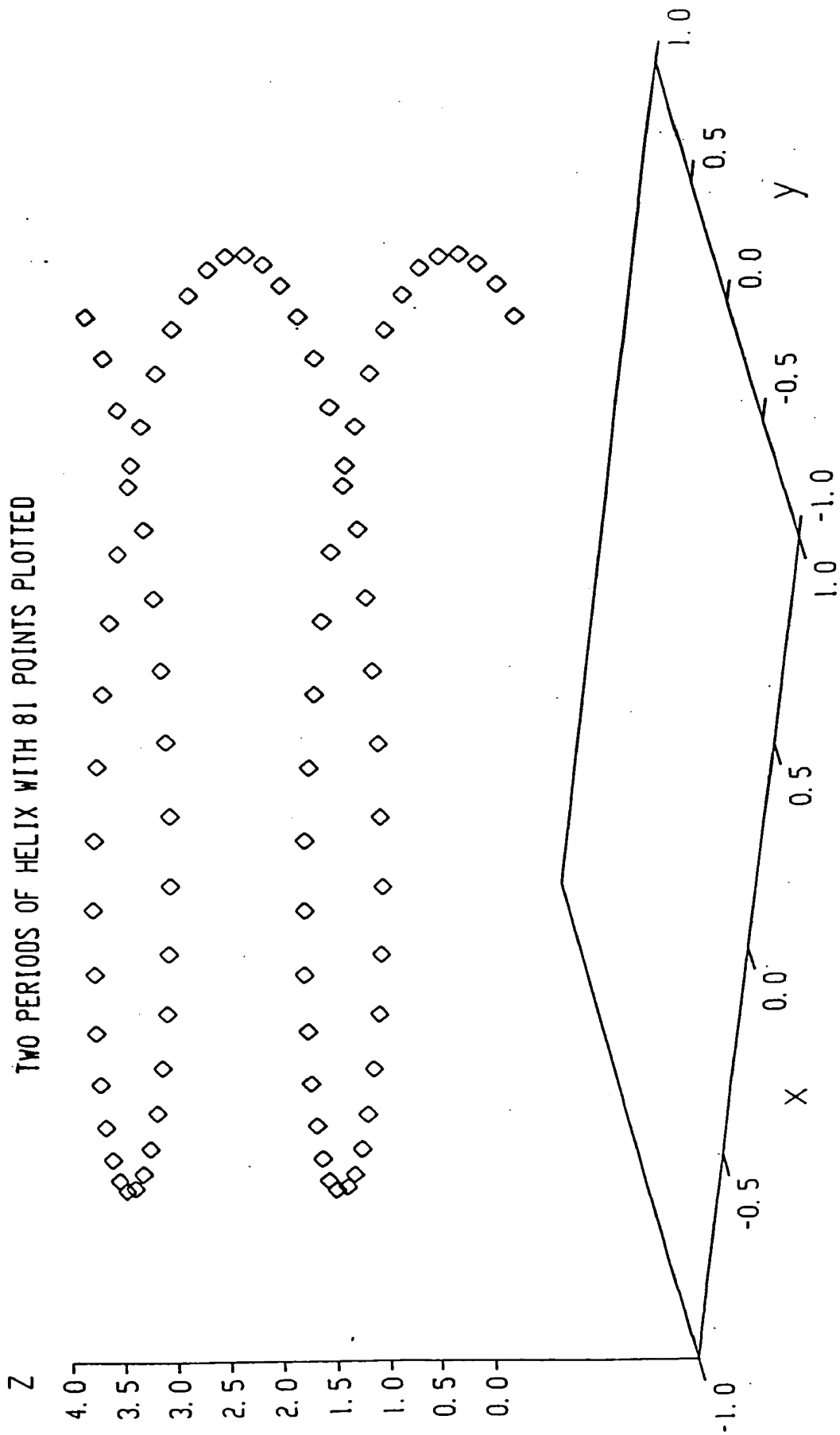


Fig. 2

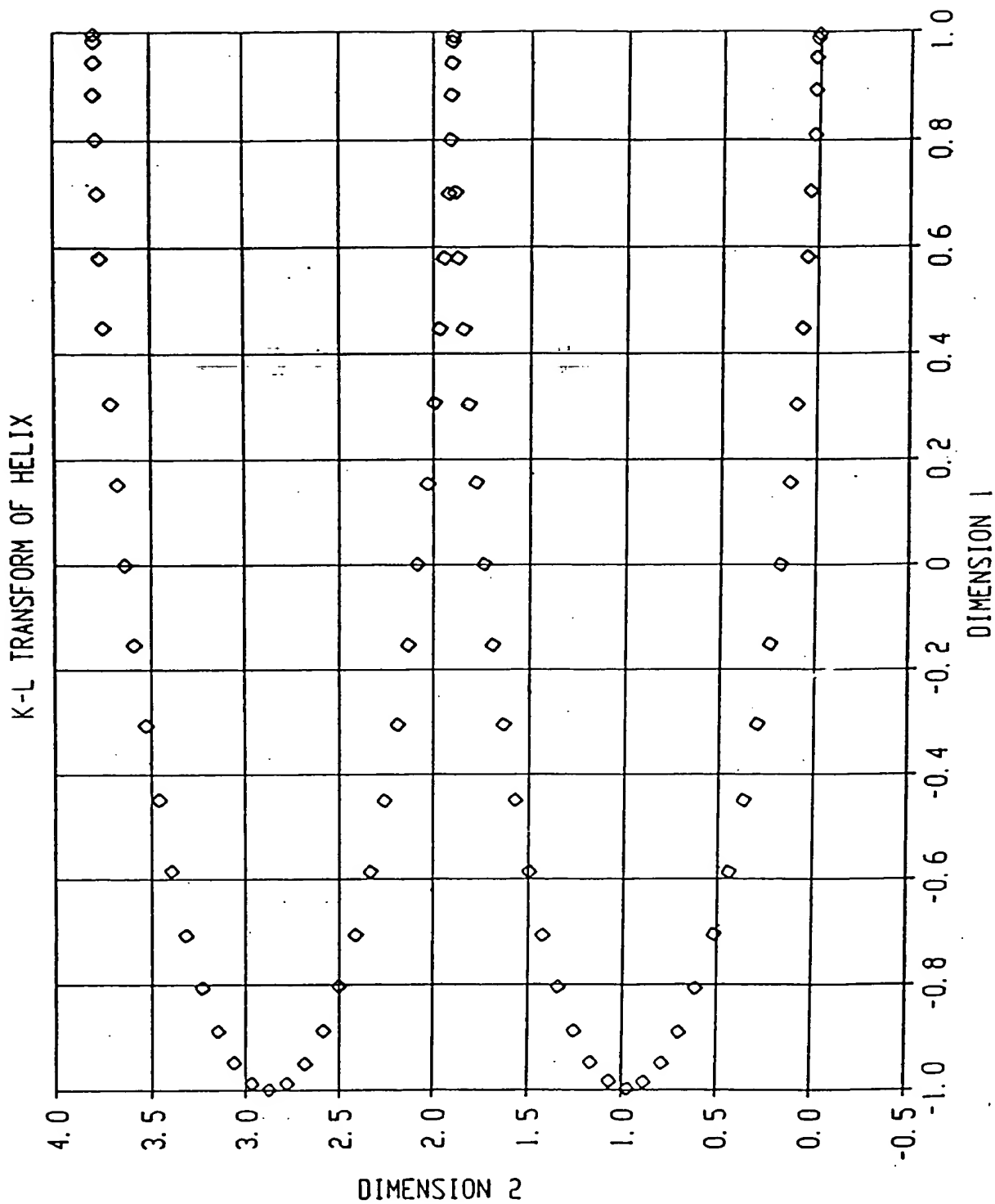


Fig. 3

2-D REPRESENTATION OF AUTO-ASSOCIATIVE MAPPING OF HELIX

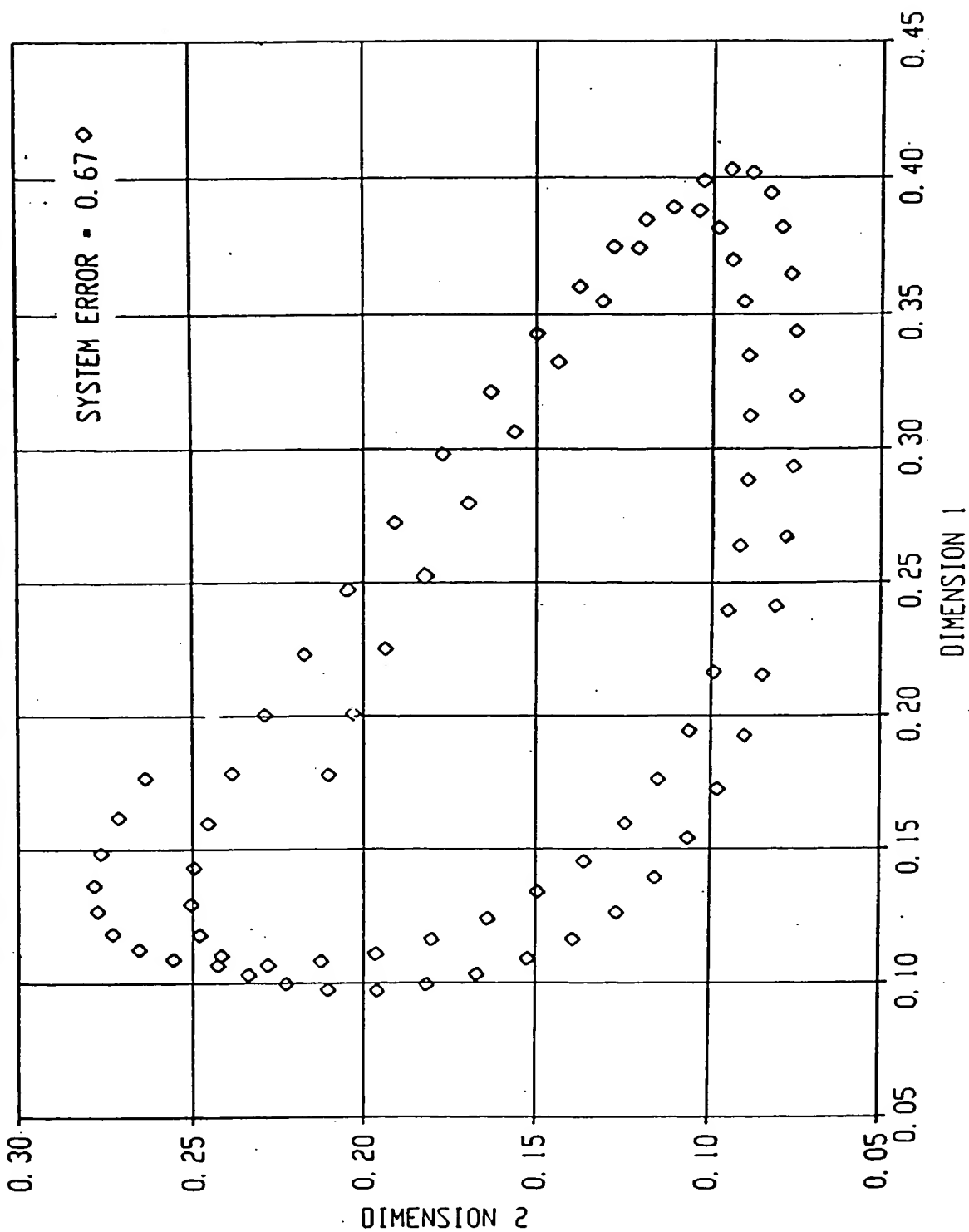


Fig. 4

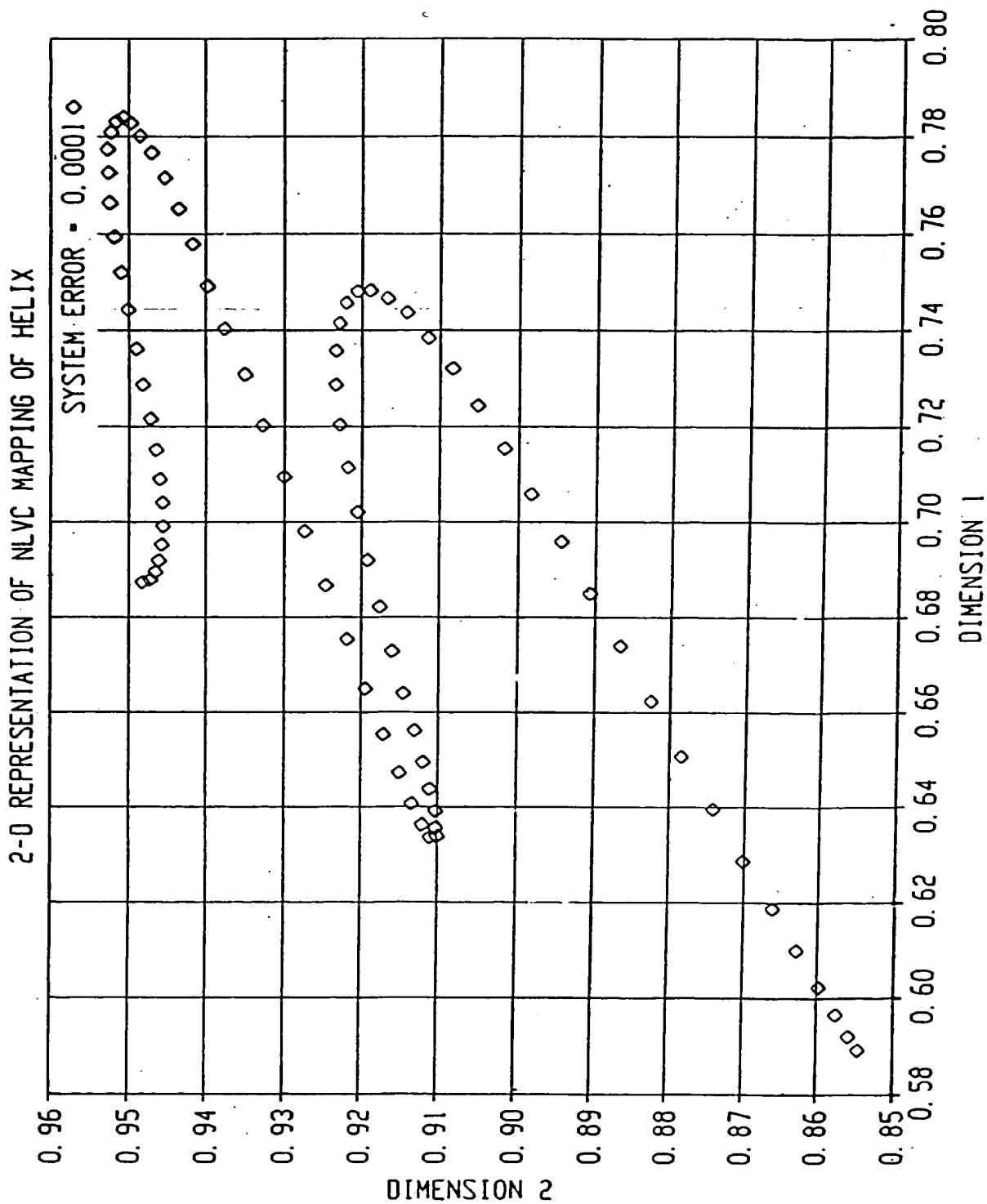


Fig. 5

2-D REPRESENTATION OF GASOLINE BLENDING DATA

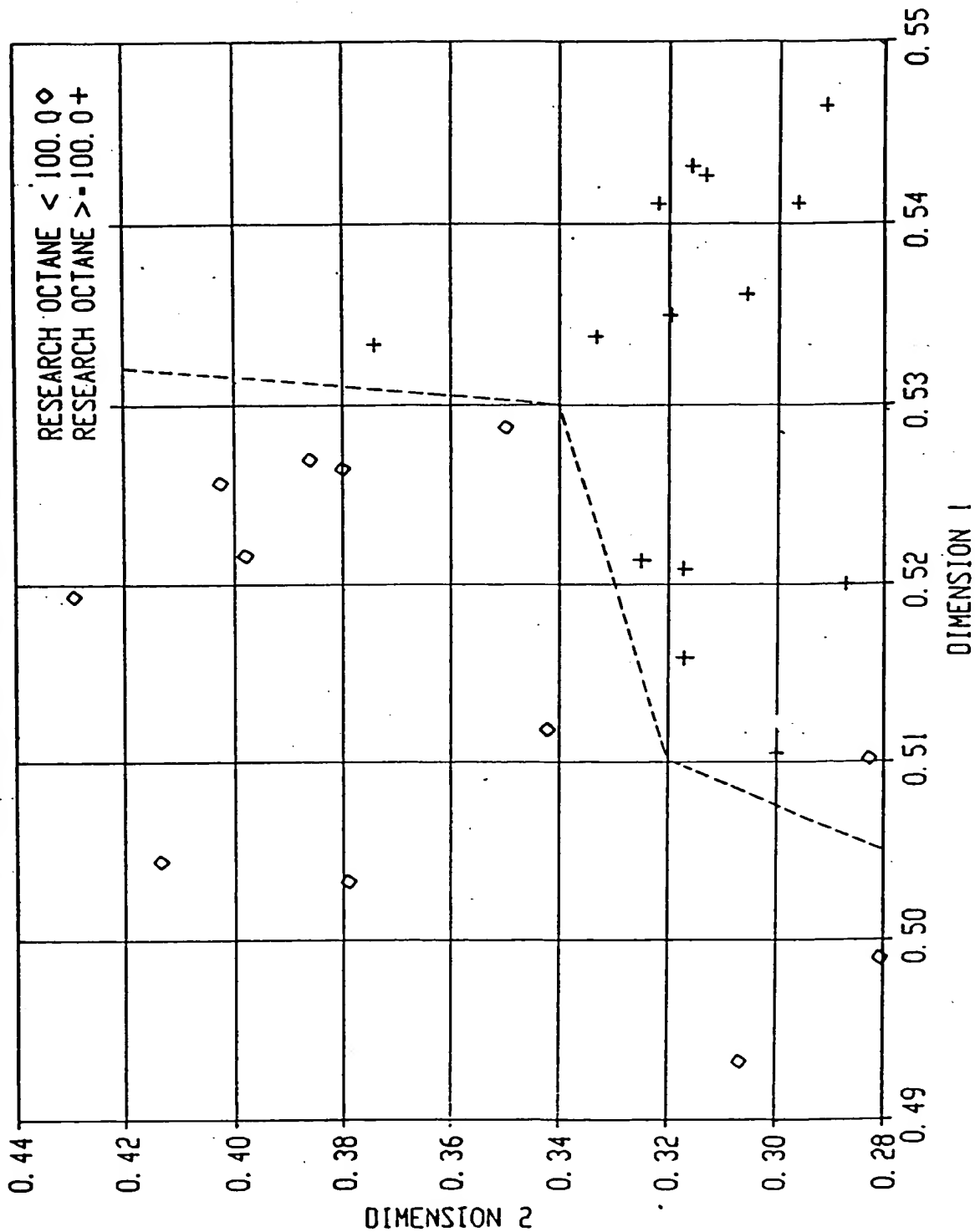


Fig. 6

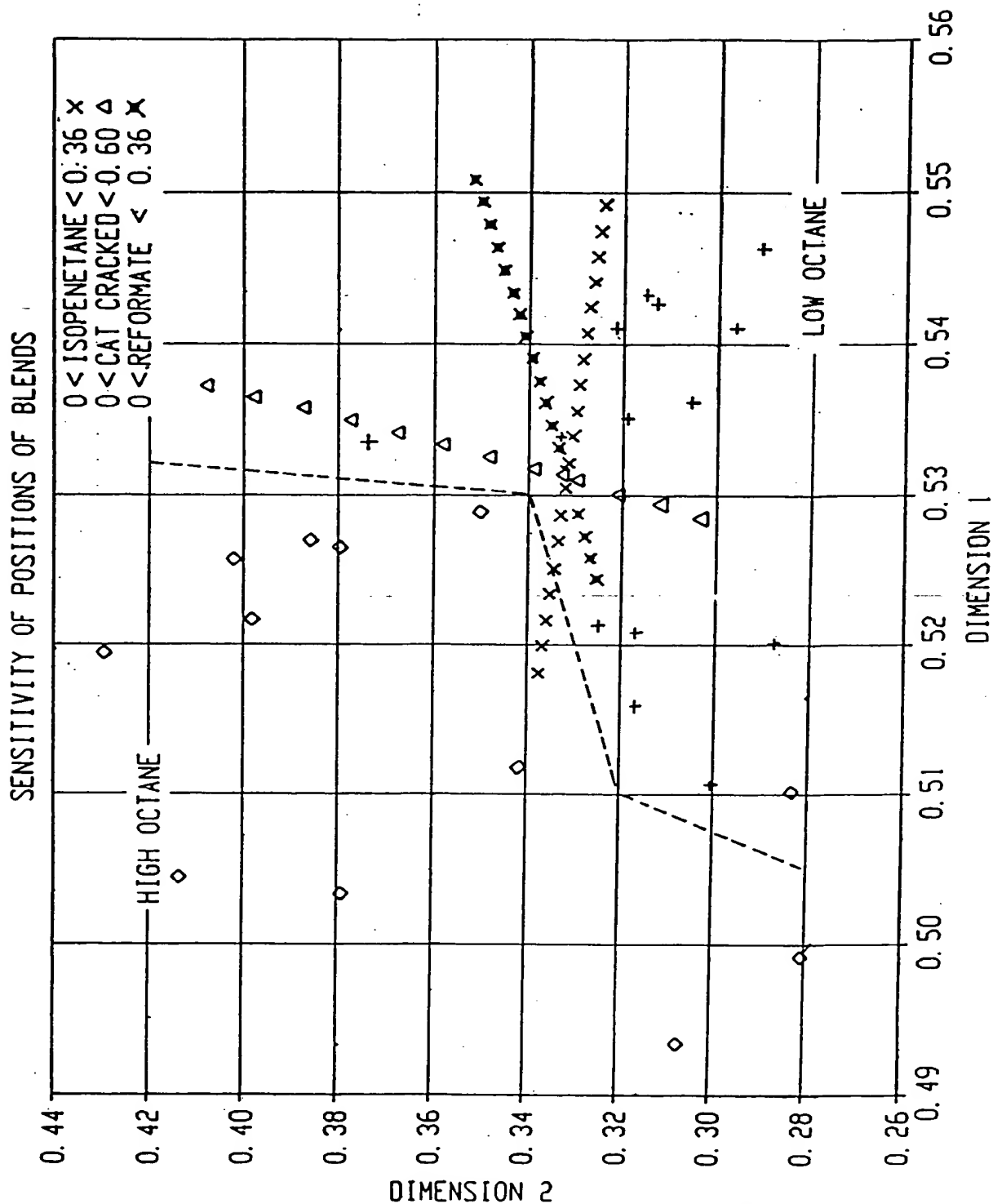


Fig. 7

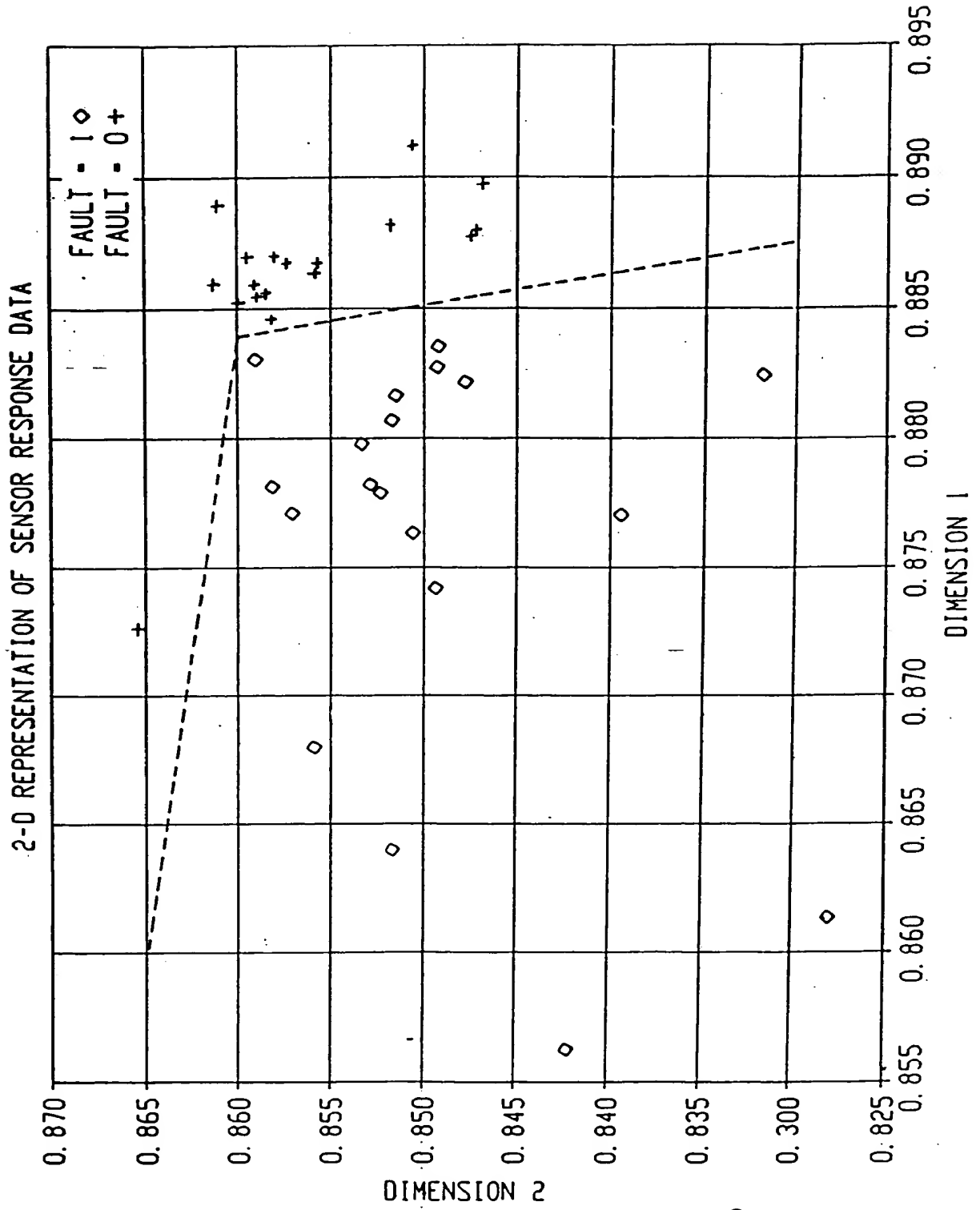
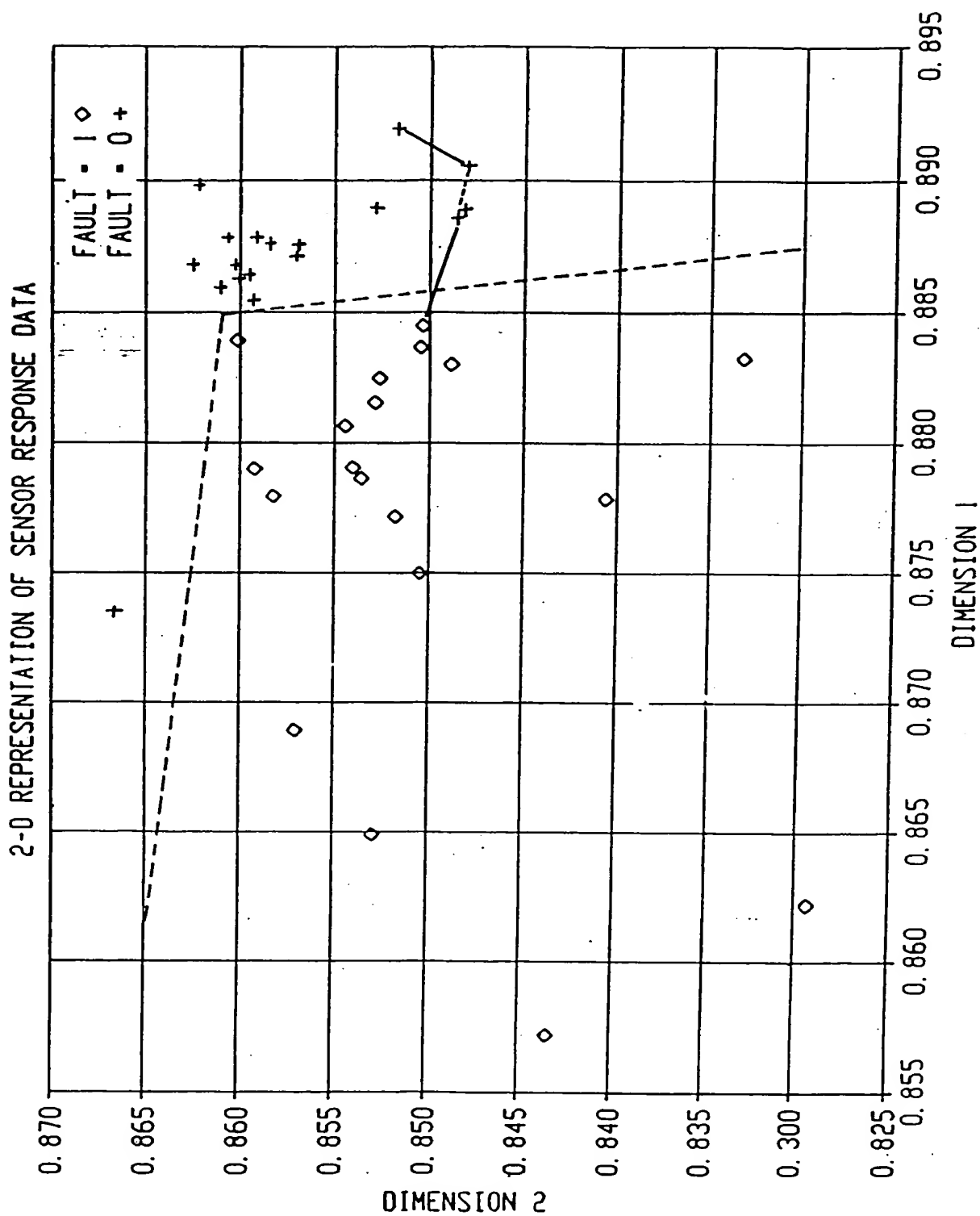


Fig. 8



2-0 REPRESENTATION OF BAND GAP DATA

No.	x1	x2	x3	x4	x5	y
1	0.000	0.000	0.350	0.600	0.600	100.0
2	0.000	0.300	0.100	0.000	0.600	101.0
3	0.000	0.300	0.000	0.100	0.600	100.0
4	0.150	0.150	0.100	0.600	0.000	97.3
5	0.150	0.000	0.150	0.600	0.100	97.8
6	0.000	0.300	0.490	0.600	0.051	96.7
7	0.000	0.300	0.000	0.489	0.211	97.0
8	0.150	0.127	0.023	0.600	0.100	97.3
9	0.150	0.000	0.311	0.539	0.000	99.7
10	0.000	0.300	0.285	0.415	0.000	99.8
11	0.000	0.080	0.350	0.570	0.000	100.0
12	0.150	0.150	0.266	0.434	0.000	99.5
13	0.150	0.150	0.082	0.018	0.600	101.9
14	0.000	0.158	0.142	0.100	0.600	100.7
15	0.000	0.000	0.300	0.416	0.239	100.9
16	0.150	0.034	0.116	0.444	0.600	101.2
17	0.068	0.121	0.175	0.332	0.192	98.2
18	0.067	0.098	0.234	0.000	0.270	100.5
19	0.000	0.300	0.192	0.208	0.300	100.6
20	0.150	0.150	0.174	0.226	0.300	100.6
21	0.075	0.225	0.276	0.424	0.000	99.1
22	0.075	0.225	0.000	0.100	0.600	100.4
23	0.000	0.126	0.174	0.600	0.100	98.4
24	0.075	0.000	0.225	0.600	0.100	98.2
25	0.150	0.150	0.000	0.324	0.376	99.4
26	0.000	0.300	0.192	0.508	0.000	98.6

x1 = BUTANE
 x2 = ISOPENETANE
 x3 = REFORMATE
 x4 = CAT CRACKED
 x5 = ALKYLATE
 y = RESEARCH OCTANE AT 2.0 GRAMS OF LEAD/GALLON

Fig. 11

TABLE 2: TIME-DEPENDENT SENSOR DATA PROFILES

NO.	t:1-5	t:6-11	t:12-17	t:18-23	t:24-29	FAULT
1	0.65190	0.13019	0.31398	0.69901	0.30067	0.00000
2	0.27577	0.56790	0.24946	0.61443	0.70156	1.00000
3	0.86528	0.30303	0.10538	0.56716	0.58797	0.00000
4	0.15642	0.83277	0.58065	0.37313	0.58352	1.00000
5	0.82369	0.27834	0.24731	0.67413	0.90200	0.00000
6	0.35353	0.67116	0.16559	0.65920	0.82405	1.00000
7	0.40958	0.35241	0.41290	0.73881	0.70601	0.00000
8	0.35443	0.33782	0.55054	0.70647	0.71269	1.00000
9	0.54702	0.57350	0.59355	0.67413	0.72606	0.00000
10	0.34177	0.60718	0.79355	0.79851	0.64588	1.00000
11	0.47920	0.65208	0.67312	0.83582	0.74833	0.00000
12	0.35353	0.57800	0.94409	0.95025	0.74610	1.00000
13	0.47197	0.32099	0.36559	0.58209	0.52561	0.00000
14	0.36528	0.39843	0.44731	0.61940	0.55457	1.00000
15	0.44123	0.29854	0.34624	0.57711	0.55457	0.00000
16	0.35805	0.35354	0.42150	0.59701	0.56793	1.00000
17	0.49005	0.32997	0.41505	0.72139	0.67929	0.00000
18	0.31284	0.43547	0.43656	0.72388	0.70601	1.00000
19	0.43309	0.31874	0.39785	0.71642	0.73497	0.00000
20	0.34991	0.3625	0.44946	0.71144	0.73051	1.00000
21	0.46745	0.26936	0.40860	0.69652	0.72160	0.00000
22	0.35262	0.37261	0.42366	0.70398	0.70601	1.00000
23	0.59042	0.25253	0.48602	0.78358	0.82628	0.00000
24	0.38427	0.37486	0.48172	0.79851	0.80401	1.00000
25	0.38156	0.19753	0.40645	0.63930	0.83296	0.00000
26	0.34810	0.52189	0.44516	0.68906	0.72160	1.00000
27	0.75769	0.91134	0.44301	0.61194	0.51225	0.00000
28	0.41863	1.00000	1.00000	0.59453	0.49220	1.00000
29	0.50723	0.36364	0.40645	0.68159	0.71715	0.00000
30	0.34991	0.47250	0.45806	0.70149	0.70156	1.00000
31	0.54069	0.24691	0.38279	0.70647	0.73051	0.00000
32	0.38788	0.40404	0.38710	0.70149	0.72383	1.00000
33	0.41320	0.32660	0.41075	0.68408	0.71715	0.00000
34	0.34991	0.34007	0.49247	0.68906	0.70379	1.00000
35	0.39873	0.35354	0.44516	0.68906	0.69710	0.00000
36	0.33906	0.32323	0.58065	0.70149	0.69710	1.00000
37	0.29747	0.26824	0.42366	0.74378	0.85746	0.00000
38	0.30561	0.21886	0.36129	0.59950	0.67038	1.00000

Fig. 12

TABLE 3: SEMICONDUCTOR CRYSTAL STRUCTURE PARAMETERS AND BAND GAPS

No.	COMPOUNDS	u	a	c	c/a	GAP
1	AgGaS ₂	0.28	5.75722	10.3036	1.790	2.55
2	AgAlS ₂	0.3	5.73	10.3	1.798	3.13
3	AgGaSe ₂	0.27	5.755	10.28	1.786	1.8
4	CdSiAs ₂	0.298	5.884	10.882	1.849	1.55
5	CdGeP ₂	0.2839	5.738	10.765	1.876	1.72
6	AgAlTe ₂	0.26	6.296	11.83	1.879	2.25
7	CdGeAs ₂	0.278	5.9432	11.2163	1.887	0.6
8	AgGaTe ₂	0.26	6.3197	11.9843	1.896	1.1
9	AgInTe ₂	0.25	5.836	11.1789	1.916	1.9
10	CdSnP ₂	0.265	5.9	11.518	1.952	1.7
11	CuAlSe ₂	0.26	5.6103	10.982	1.957	2.6
12	AgInSe ₂	0.25	6.455	12.644	1.959	0.96
13	CdSnAs ₂	0.262	6.09	11.94	1.961	0.26
14	ZnGeP ₂	0.25816	5.46	10.71	1.962	2.34
15	CuAlS ₂	0.27	5.31	10.42	1.962	3.35
16	ZnGeAs ₂	0.25	5.66	11.154	1.971	0.75
17	CuFeS ₂	0.27	5.289	10.423	1.971	0.53
18	AgAlSe ₂	0.27	5.95	10.75	1.807	2.6
19	CuAlTe ₂	0.25	5.964	11.78	1.975	2.06
20	CuGaTe ₂	0.25	6.013	11.934	1.985	1.24
21	CuTiSe ₂	0.25	5.832	11.63	1.994	1.07
22	ZnSnAs ₂	0.231	5.851	11.702	2.000	0.65
23	ZnSnP ₂	0.238	5.65	11.3	2.000	1.66
24	ZnInSe ₂	0.224	5.784	11.614	2.008	0.95
25	CuInS ₂	0.2	5.5228	11.1321	2.106	1.54
26	CuGaS ₂	0.25	5.555	11.0036	1.981	1.71

Fig. 13

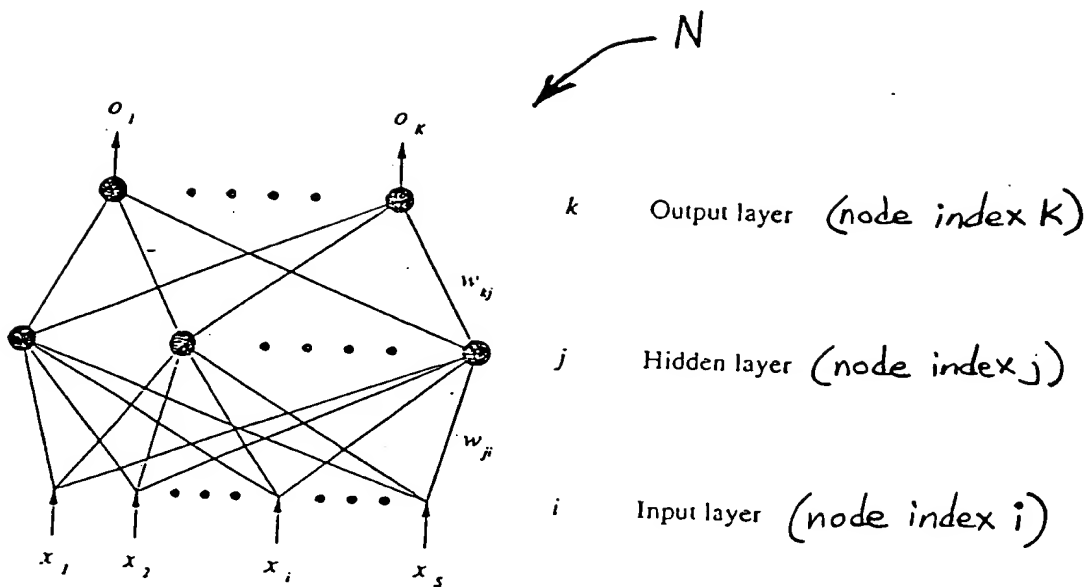


Fig. 14

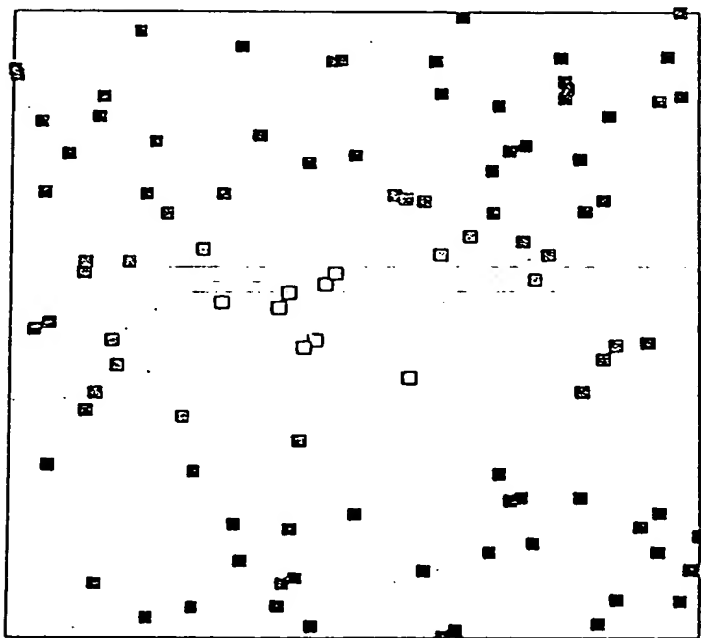


Fig. 15

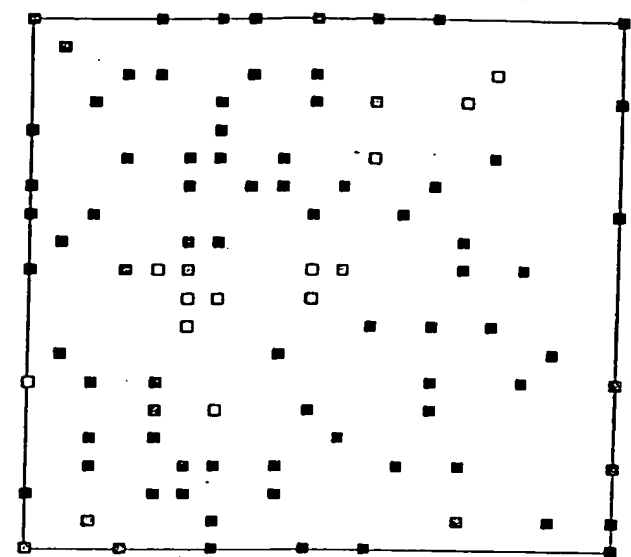


Fig. 16A

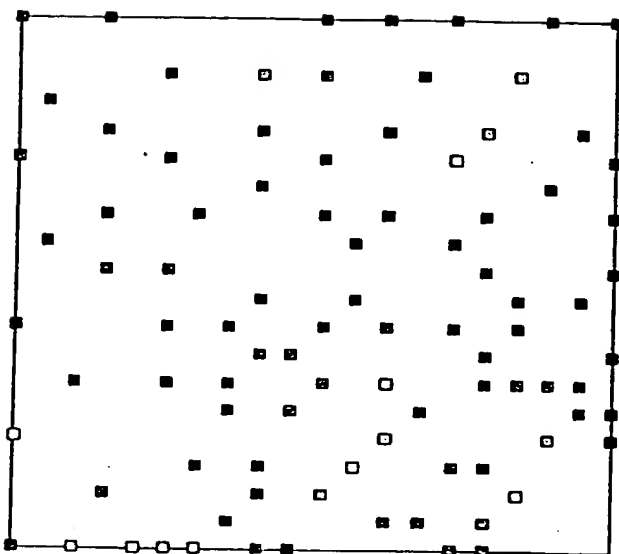


Fig. 16B

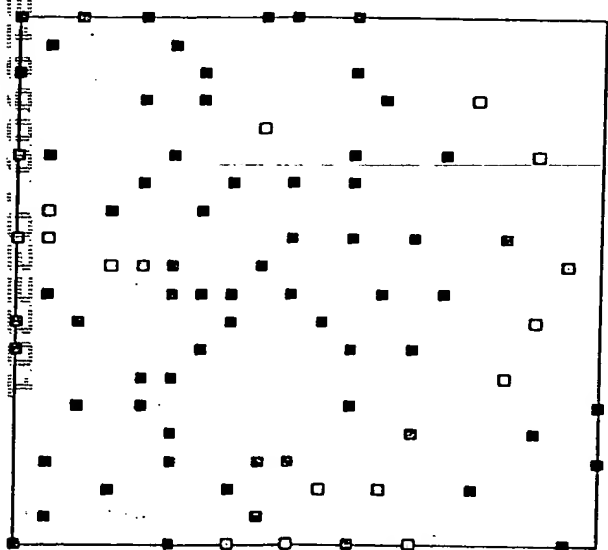


Fig. 16C

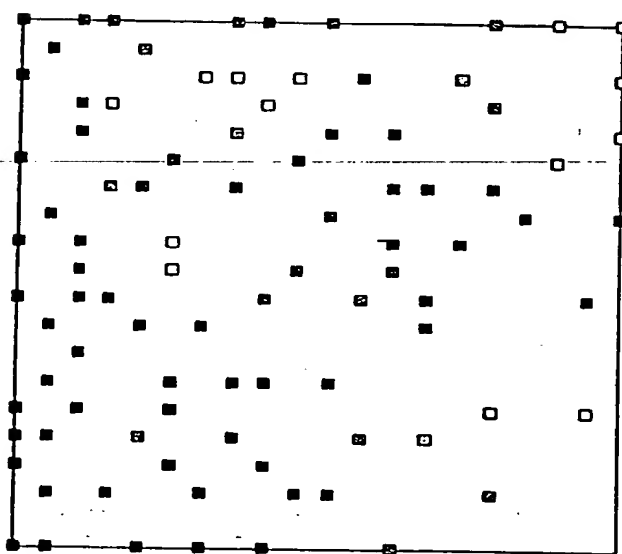


Fig. 16D

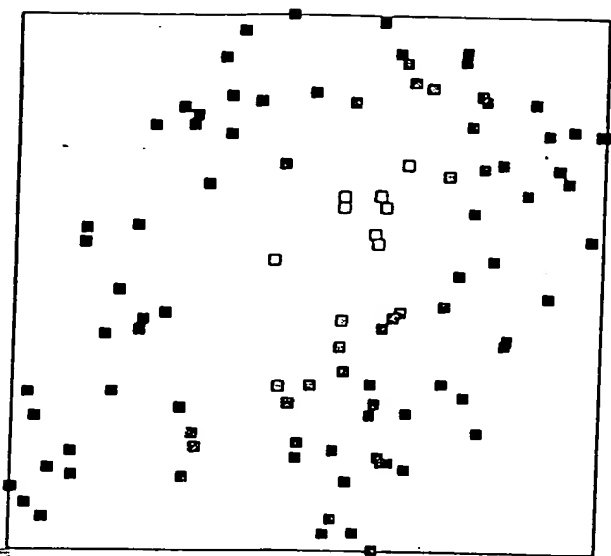


Fig. 17A

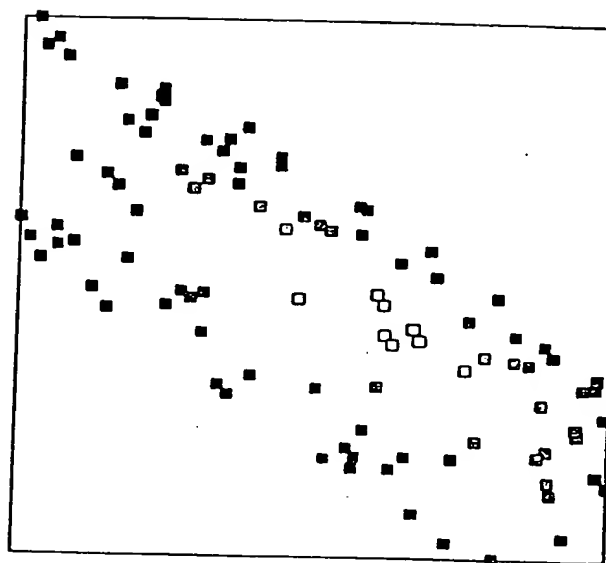


Fig. 17B

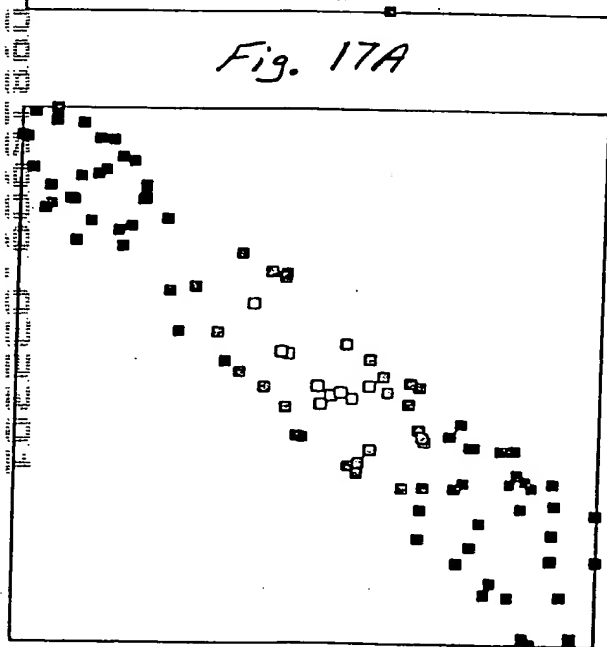


Fig. 17C

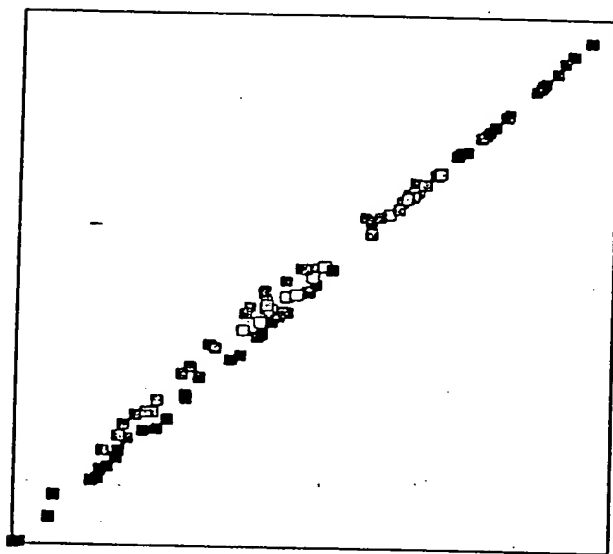
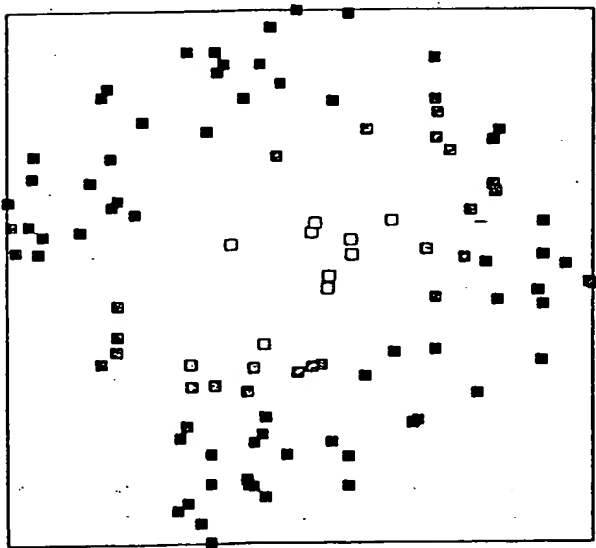
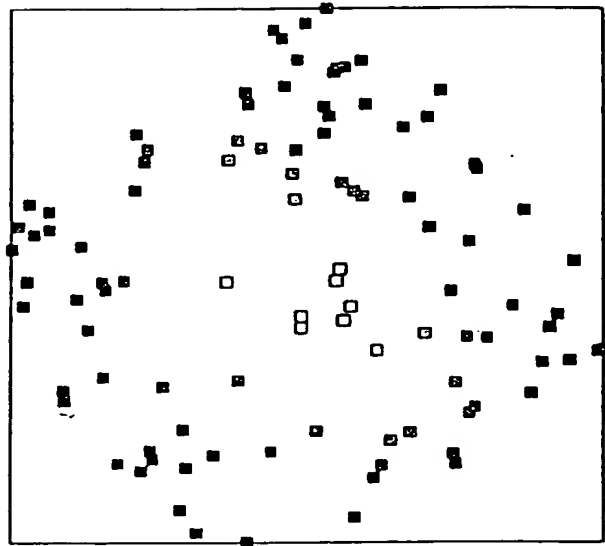
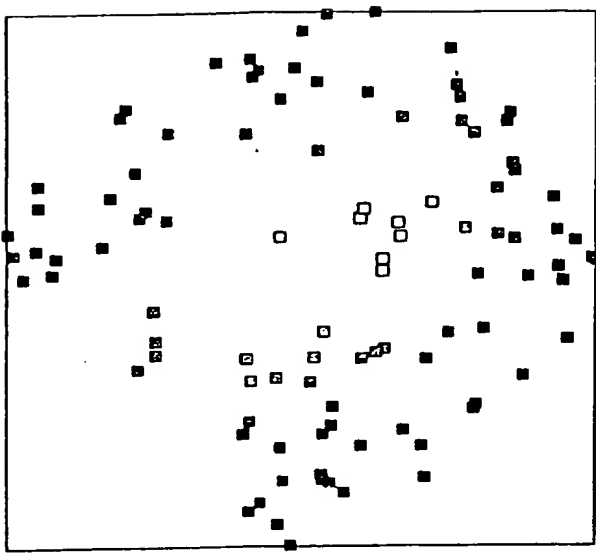


Fig. 17D



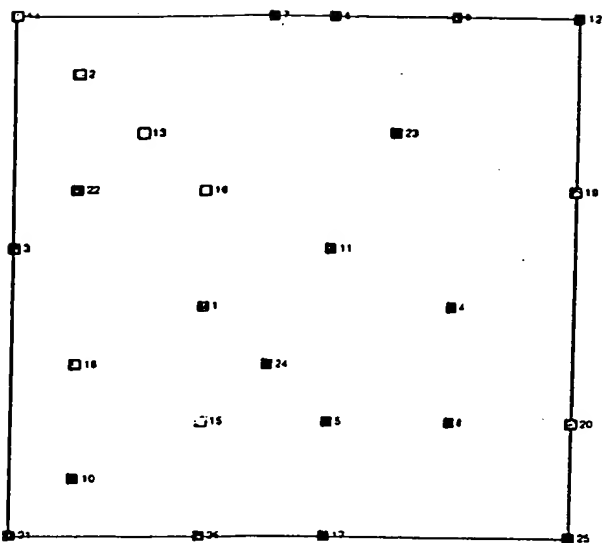


Fig. 19A

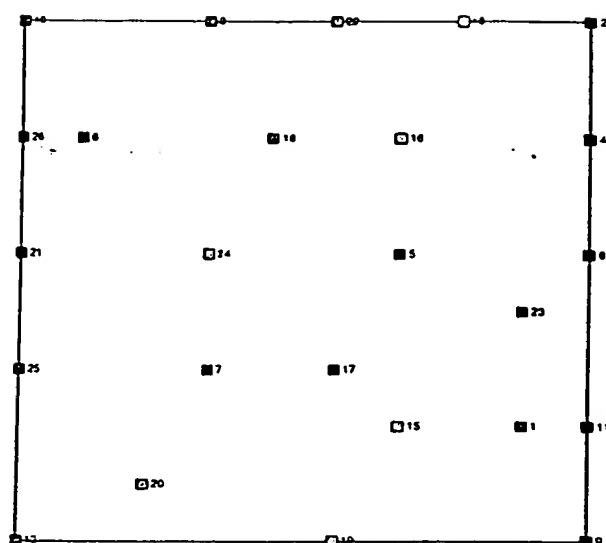


Fig. 19B

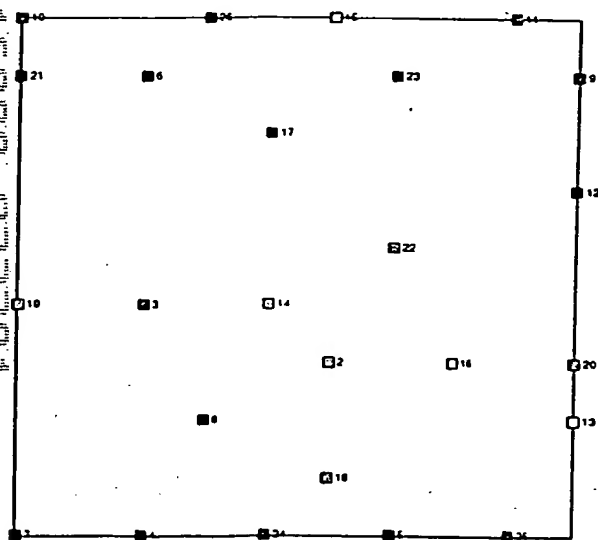


Fig. 19C

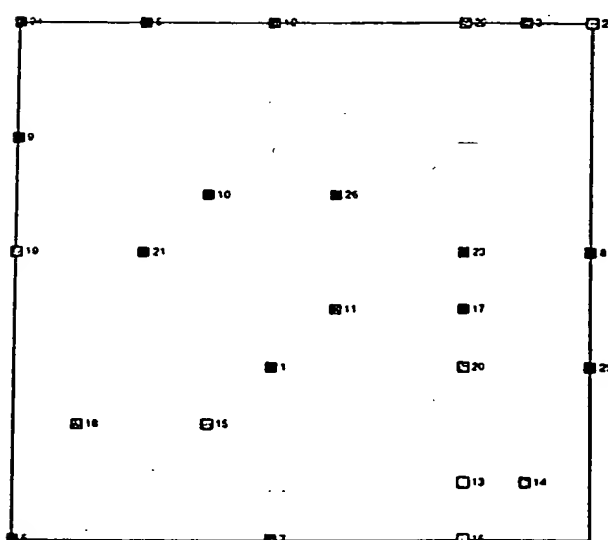


Fig. 19D

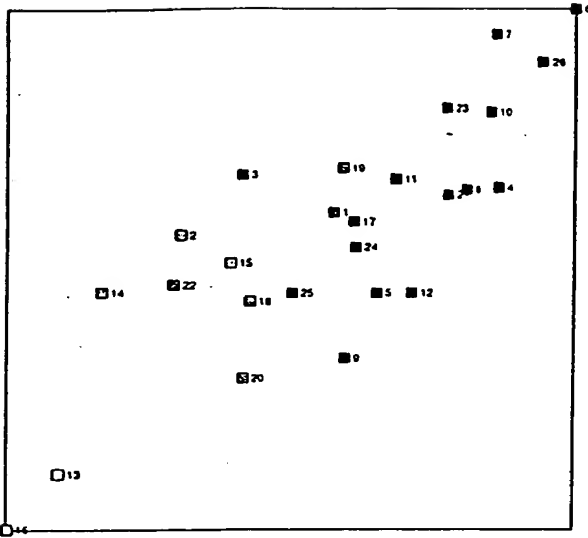


Fig. 20A

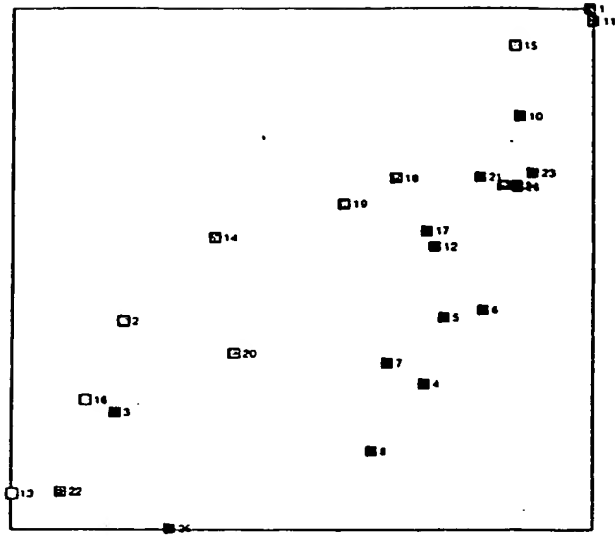


Fig. 20B

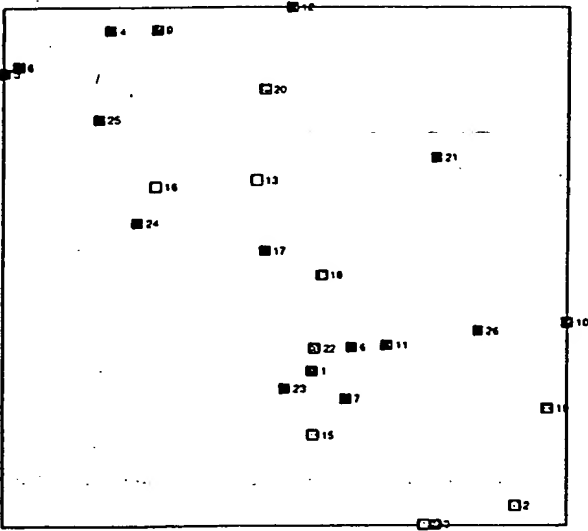


Fig. 20C

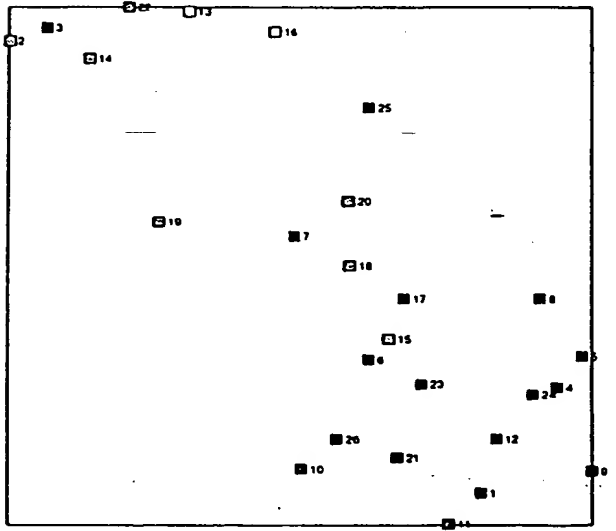


Fig. 20D

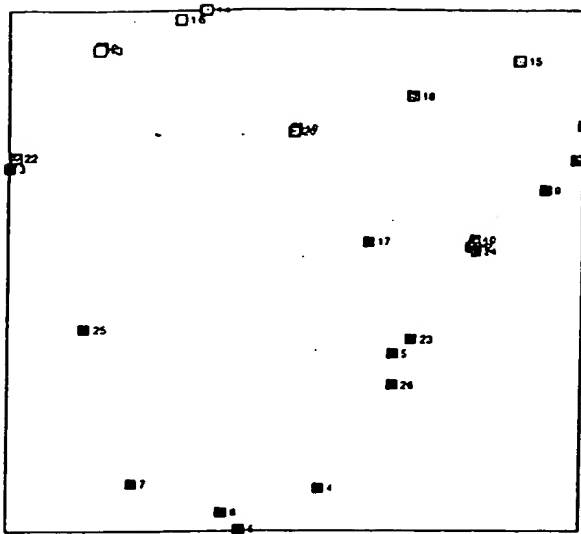


Fig. 21A

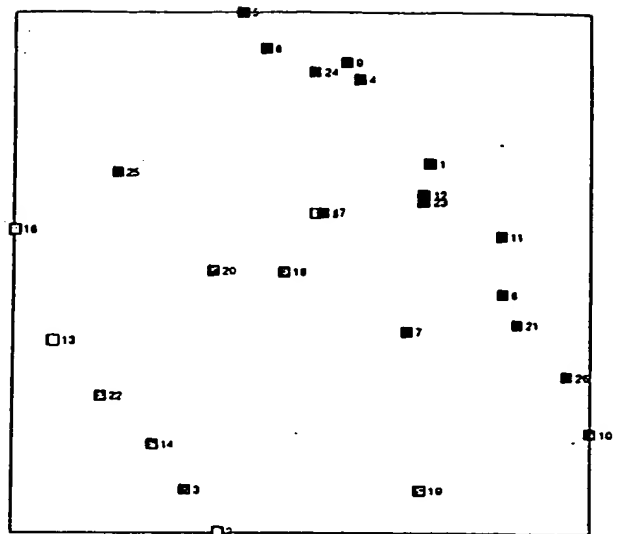


Fig. 21B

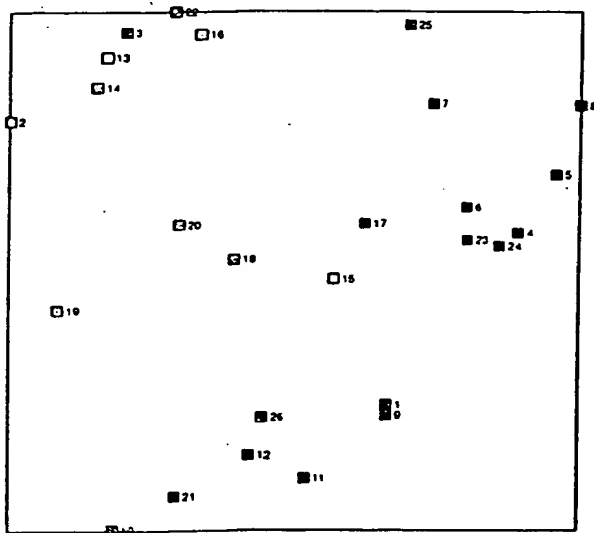


Fig. 21C

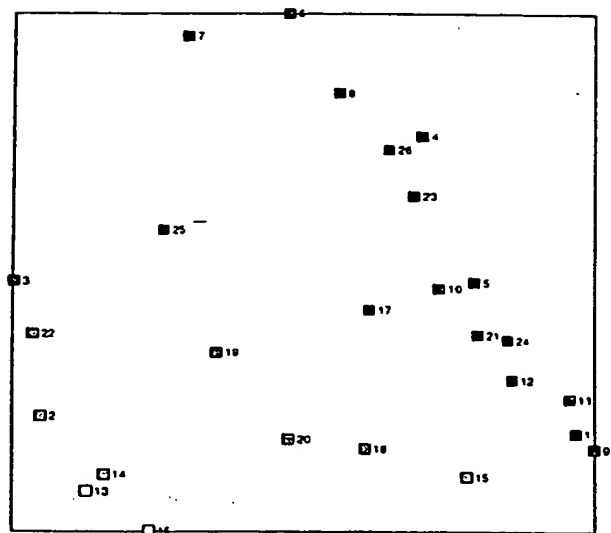


Fig. 21D

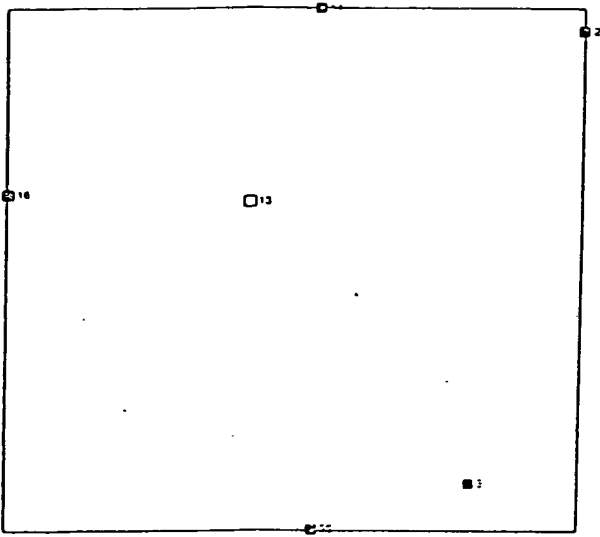


Fig. 22A

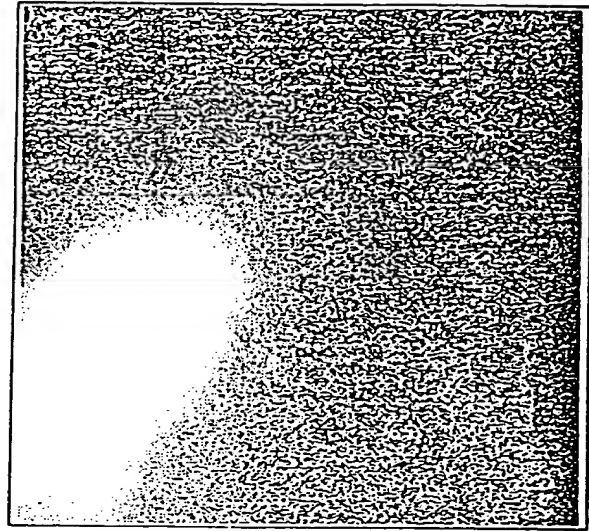


Fig. 22B